

Riley (C.V.)

Compliments of
C.V. Riley.

NOTES ON JOINT WORMS.

PROF. C. V. RILEY.



From the Rural New-Yorker of June 20, 1885, Vol. 44, page 418.

MR. ELLIOT LUSE, of Barry, Ohio, under date of May 4th, sent me samples of wheat-straw for inspection. He writes as follows:

"Last Fall, when thrashing, there was a hard straw that would come through with the grain. It was from half an inch to three inches in length: when cleaned with a hand-mill, I would get about one bushel of this straw out of 20 bushels of grain. We thought but little about it at the time. This Spring, I commenced feeding my horses with cut straw and ground feed. One horse was taken sick, and I sent for the doctor. He said it was worms, and gave her a dose, which soon cured her. In less than a week another was taken, and had the same symptoms as the first. I concluded it must be in the feed. Examining the straw, I find such as I send you. In one piece, not over two and a half inches, I found as many as eight worms. What are they, and will they injure the grain this Summer? I find them only in the wheat straw."

The insects in these straws proved to be the common Joint Worm (*Isosoma hordei*, Harr.) (Fig. 215), which was quite abundant in parts

namely, *I. tritici* (Riley), and *I. grande* (Riley), Figs. 216, 217, 218, are quite different. These



Fig. 215.

Isosoma hordei, the true Joint-worm Fly.—a, female, with her antenna and abdomen enlarged (c, e) b male, with same parts enlarged (d, f).—After Riley.

of the country last season, and was a great pest 30 years ago. As noticed by Mr. Luse, the insect remains in the straw through the Fall and Winter, and the most satisfactory way to destroy it is to burn the infested straw. The fact that the hardened and solidified bits of straw, infested by the Joint Worm, came through the thrasher with the wheat, in such quantities, is a most interesting experience, and shows the necessity of cleaning wheat that has been infested by this insect and of burning the hardened and swollen bits of straw.

As the Joint Worm has evidently been on the increase for the last few years, I would recommend to wheat growers to examine carefully their cut straw at harvest time, and if the infested portions are found numerous, as is easily ascertained by the slight gall-like swelling and hardening of the parts affected, it should be burned, as they can very well afford to sacrifice the straw to lessen the injury the ensuing year. After Mr. Luse's experience, one cannot be too careful in cleansing the grain and in separating and destroying the infested straw.

While speaking of this Joint Worm, I regret that Prof. A. J. Cook should have given such prominence to a redescription of this old and well-known pest. In reading over his account on page 314 of the *RURAL*, I could not but feel that he was dealing with *Isosoma hordei* (Harr.) and specimens which he has kindly sent, at my request, prove beyond a doubt that my surmise was correct. The coloration in this species is sufficiently variable to have induced Dr. Fitch to separate from it what he considered three distinct species, viz.: *I. tritici*, *secalis* and *favipes*. The researches of Walsh, and the experience of myself and others since, have shown these so-called species to be one and the same, and the names have become mere variety names. Prof. Cook's species accords in every way with the *Tritici* variety, and the work, as shown by him, is that peculiar to this species; for while, ordinarily, it causes more or less of swelling of the straw, the solidifying and hardening often take place with no more swelling than indicated in his figure, and the habits of the other species that infest wheat

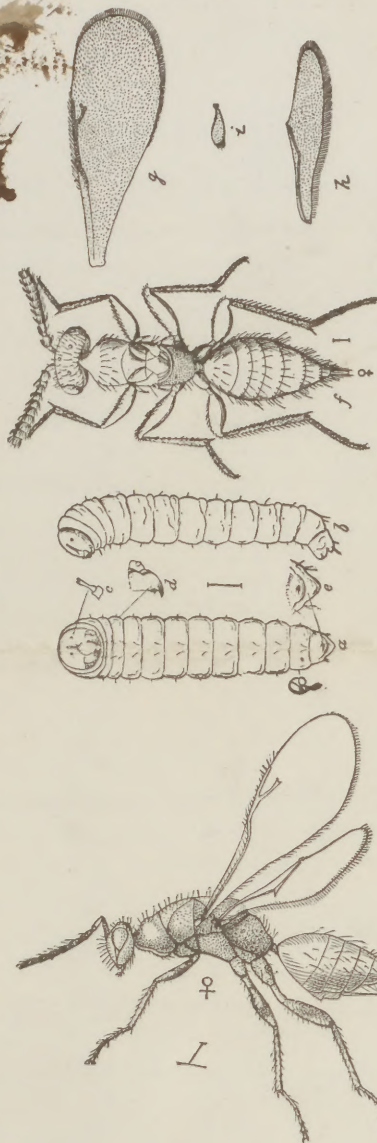


Fig. 216.—*Isosoma tritici*, the wingless Joint worm Fly.—showing female (f); larva (a, b); and rudimentary wing (c); with full developed wings (g, h) of exceptional individuals.—After Riley.

Fig. 217. *Isosoma grande*, larger Joint-worm Fly, female.—After Riley.

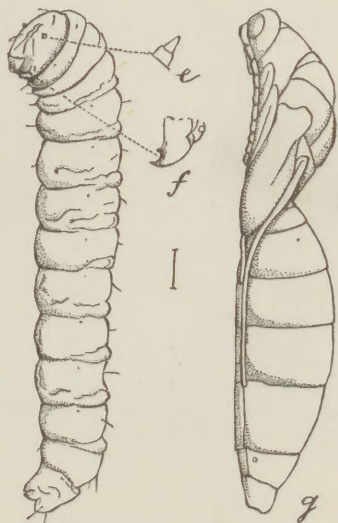


Fig. 218.

Isosoma grande.—d, larva; e, antenna; f, mandible; g, pupa.—After Riley.

two are known only in the female sex, and as Prof. Cook's figures are lacking in structural accuracy, I send the *RURAL* herewith figures of the three species known to infest wheat. The larva of *Isosoma hordei* occurs in numbers usually near the joint, and produces veritable galls, the affected stalk solidifying and the external swelling varying in prominence. The other two species, which may prove to be dimorphic forms, live singly in the stalk without causing any hardening or swelling.

The larvæ and pupæ of all three species are so much alike that they cannot well be distinguished by the most skilled, and Prof. Cook's description, agrees better with the parasitic *Semiotellus* larva than with that of *Isosoma*.

